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XVI.—*Description of a new Genus of West African Snakes, and Revision of the South American* Elaps. By Dr. Albert Günther.

[With a Plate.]

The publication of the description of the following interesting Snake has been delayed in consequence of the author having some knowledge of another *West African Snake*, besides *Atractaspis irregularis, with entire subcaudal plates and without loreal shield*, described in a MS. said to be ready for publication. This snake, however, has proved to belong to the venomous tribe*, and to be widely different from that in the Collection of the British Museum. The latter is to be referred to the family Calamaridæ, along with *Aspidura* and *Haplocercus*.

Elapops, n. g.

Body and tail moderately elongate, the latter tapering; two pairs of frontals, two nasals, nostril between; *loreal none*, united with the posterior nasal; one anterior and one posterior ocular. Scales smooth, in fifteen rows; anal and *subcaudals entire*. *Teeth equal, smooth.*

Elapops modestus, n. sp. (Pl. IV. fig. C.)

Seven upper labial shields. Uniform greyish olive; beneath yellowish olive.

This snake has quite the physiognomy of an *Elaps*. The rostral is rather small, and terminates above in an obtuse angle, not extending on the upper surface of the head. The anterior frontals are irregularly quadrangular, half the size of the posterior ones, which extend somewhat on to the loreal region. The

* *Polemon Barthii*, Revue et Mag. Zool. 1858, December, p. 525; and 1859, pl. 5.

vertical is five-sided, with an obtuse anterior and an acute posterior angle, and with the posterior sides longer than any of the others. The occipitals taper posteriorly. The anterior nasal is small and notched by the nostril; the posterior is evidently formed by the united loreal and postnasal shields. One anterior and one posterior ocular. Seven upper labial shields: the first and second are small; the third touches the postnasal, præorbital, and the eye; the fourth below the orbit; the fifth touches the postocular, the sixth the occipital and slightly the postocular, the seventh the temporal: there is another scale-like shield behind the seventh labial, to which, however, the cleft of the mouth does not extend. A single large temporal shield is separated from the postocular by the intervening sixth labial shield. The first pair of the lower labials form a suture together behind the median one; there are two pairs of chin-shields of nearly equal size. The trunk is surrounded on every part by fifteen rows of scales. There are 160 ventral and 44 subcaudal plates, all being entire.

The upper parts are uniform greyish olive, or black after the epidermis is detached. The lower side is uniform yellowish olive, or white if the epidermis is lost.

The total length is 19 inches, the cleft of the mouth being one-third of an inch and the tail $2\frac{3}{4}$.

The specimen formed part of a collection of West African snakes purchased of Mr. Rich for the British Museum, and containing *Coronella fuliginoides, Grayia* triangularis, Meizodon regularis, Dipsadoboa unicolor,* &c.

Among the best-determined genera of Ophidians are those distinguished by entire subcaudal plates. Out of fifteen genera with which we are at present acquainted possessing this character, no less than five are from Western Africa: namely *Elapops,* belonging to the family Calamaridæ; *Dipsadoboa* (*unicolor*), to the Dipsadidæ; *Holuropholis,* to the Lycodontidæ; and *Atractaspis,* the type of a distinct family, to which perhaps *Polemon*† may belong. This is a very remarkable feature of the Ophidian fauna of Western Africa, in which it appears to be very different from the southern parts of the Ethiopian region, where, according to the present state of our knowledge, but a single snake with the character above mentioned is found, viz. *Atractaspis*

* The name of *Heteronotus* is inadmissible, it being used for a genus of Lizards; see Gray, Catal. Lizards.

† Provided that *Polemon* (of the venomous tooth of which we are not yet informed whether it is externally grooved or perforated by an internal channel) is a genus really different from *Atractaspis.* The genera which have only a part of the subcaudals entire are not brought into the above account.

irregularis; and this is common to Southern and Western Africa.

The last-named genus, *Polemon*, has been lately made known by Prof. Jan in the 'Revue et Magasin de Zool.' 1858, December, p. 525, where he commences an abstract of the MS. of his 'Iconographie descriptive des Ophidiens.' As I have lately paid much attention to this order of animals, I may be allowed to make a few remarks on Prof. Jan's mode of treating his subject. Herpetologists who may refer to his paper will be surprised to find that neither the Collection of the British Museum (which, as well as those of Paris and Leyden, is distinguished for its large series of snakes), nor the publications based on that Collection and published prior to Prof. Jan's labours, are mentioned in it. On this point the following statement will suffice*. Prof. Jan *examined* the specimens on the spot, but after having done so, declared to me that, "if he could not take them to Milan, he would omit them in his work." I thought, nevertheless, the time spent was compensated for by the identification of some synonyms in my Catalogue, and of

* When Professor Jan requested permission to take with him to Milan the type-specimens of the species of snakes which had been described from the Museum specimens, and also some other snakes which were interesting to him, I informed him that it was against the rules of the Museum to allow any such specimens to leave the walls of the Establishment, and that I could not recommend the Trustees to make an exception and accede to his request, as I considered the rule a very proper and sensible one, for the following among other reasons:—

1. It would be very inconvenient to any herpetologist who might come to examine the snakes, to be informed that the specimens which he wished to see were gone to Milan or any other place,—an inconvenience I have myself experienced when I have made an excursion, for the purpose of examining certain type-specimens, to Paris or some other museum where such loan of specimens is permitted.

2. It is very difficult to make sure, even with the very best intention on the part of the person who borrows the specimens, that they will be returned within a reasonable time, if at all. I should like to know, for example, in the present state of Northern Italy, if such a loan would not have been attended with great risk.

3. The manner in which the British Museum is consulted is so different from that of any continental institution, that a rule, such as that of lending specimens, which may not be very objectionable there, where the persons who consult the specimens are few and known, would be very objectionable and impossible here, where any specimen may be asked for at any moment, and expected to be forthcoming.

Being desirous of giving Professor Jan all the assistance in my power, even during my absence, I directed that he should have every facility to examine and make a drawing of any specimen which was interesting to him; and that if he would mark any specimens he might like to have figured, and leave or send an example of the kind of figures he might desire, I would have them made for him as soon as they could be executed, and send them to him for his work.—J. E. Gray.

some which would probably have occurred in his work. So far as omitting all mention of the Collection of the British Museum, Prof. Jan has only kept his word; and it being allowed to everybody to leave his work as incomplete as he pleases, I have no right to interfere with Prof. Jan's proceedings on this point. It is another thing, however, with his method of treating the genus *Elaps*. Being informed by me, during his sojourn at the British Museum, that I had written a paper on *Elaps*, he expressed himself anxious (in a letter directed to me) to receive a copy of it. The publication of this paper (read before the Zoological Society, January 1859) being delayed by the previously intervening vacation of the Society and the execution of the accompanying plates, I communicated to him the distribution of the genus which I had proposed, together with the diagnoses and names of the genera. Now Prof. Jan may have previously arrived at the same results, but he has substituted new names, viz. *Helminthoelaps* for *Callophis* (*Elaps* remains *Elaps*), *Homoroselaps* for *Pœcilophis*, *Homaloselaps* for *Vermicella*. Such a multiplication of synonyms is the less justifiable as the name of *Callophis* has been applied to East Indian *Elaps* since the year 1832, and as there exists a second name for it, *Doliophis**. The denomination of *Vermicella* was introduced into the literature early in 1858.

So far on this point: on a second, I am happy to say, my remarks are directed against a principle in herpetology which appears to have found a rather strong representative in Prof. Jan. He says of the South American *Elaps*, "Les espèces offrent dans leur ensemble, et dans la forme et la position des plaques céphaliques, une telle ressemblance entre elles, qu'il est difficile, pour la plupart, de les distinguer autrement que par les dessins qui résultent de la distribution de leurs différentes couleurs, ordinairement au nombre de trois—le noir, le rouge, et le jaune. *Ces dessins sont assez constants dans les individus de la même espèce.*" That is, as I understand it, "the coloration becomes very constant as soon as you establish for every modification of colour a new species." Certain as it is that there *are* different species of South American *Elaps*, it is equally so that they vary indefinitely in coloration. It is impossible for men who make their observations from preserved specimens to decide in *every* case where is the boundary between variety and species: this will be possible for those only who observe them on their own native ground, and who are better informed as to their localities than we are at present. On the other hand, we know that there are some species of snakes which show an extraordinary tendency to variation in what I call the *ornamental*

* Girard in Proc. Acad. Nat. Sc. Philad. 1857, p. 182.

colours: for instance, *Simotes purpurascens*, *Tropidonotus quinquinciatus*, *Erythrolamprus venustissimus*, &c. The latter species especially, having the same system of coloration as *Elaps* (with black rings on a red ground-colour), and inhabiting the same parts of the globe, shows a strikingly similar gradation of varieties, but with the physiognomy of the head always precisely the same.

I have again examined the ninety specimens of South American *Elaps* in the Collection of the British Museum, and compared them with Prof. Jan's account. Two only of the species figured by him could be clearly made out, whilst many other specimens approached to some of the figures, and nearly twice as many could not be referred to any of his specific categories. Now, if we consider that there were examined the specimens of a part of the British, German, French, and Italian Collections only, that these specimens were collected in the most accessible parts of South America, that scarcely two specimens perfectly agree with each other, to what amount will the number of species finally reach—species of the geographical distribution of which we know extremely little, which never were observed in nature, and which for the greater part show precisely the same shields of the head! I think the synonymy of some species of snails ought to teach us a different lesson. It would be ridiculous to deny that different species of *Elaps* inhabit the vast continent of Tropical America, and even many more than we at present know; but we can only cautiously introduce *new forms* into the list of *species*; and I think myself at liberty to do so by a combination of the following characters only:—

1. If there is a striking difference in the shape or in the arrangement of the shields of the head. The extent of the sixth upper labial shield (to or not to the occipital) does not constitute a specific difference of itself.

2. If there is a great difference in the general habit of the snake, or in the proportions between the single parts. The number of the ventral and caudal plates is in proportion to the length of the trunk and of the tail. We find that the number of ventral plates in those species of *Elaps* of which we have the best knowledge from a great number of specimens, is subject to a variation of seventy and more; therefore we cannot deduce from it alone a specific character, without having examined several specimens.

3. If there is such a difference in the distribution of the colours that we cannot refer it to a typical coloration of one of the known species*.

Prof. Jan has illustrated the new species with *coloured* plates.

* Cf. Proc. Zool. Soc. 1859, p. 82.

In specimens which are well preserved, and not for a long period in spirits, we are often able to distinguish the yellow rings from the red ground-colour even if both colours have faded, the former being a more saturated white; in others we can determine the colours by analogy, for there is a certain law in their distribution, in spite of all the modifications; in a few this is quite impossible. Now, if Prof. Jan professes to distinguish the species "par les dessins qui résultent de la distribution de leurs différentes couleurs," one is not prepared to find the coloration of a part of the figures doubtful, or even faulty; nevertheless this is the case.

1. Provided that Prof. Jan ascertained the colours of *E. multifasciatus* from a living specimen, it is very doubtful whether the light rings in this species, three specimens of which are in the British Museum, are red or yellow.

2. If in *E. apiatus*, Jan, the black rings are not yellow-edged, as represented in the figure, the occipital region cannot be yellow, but red, as in *E. Hemprichii* and *affinis*.

3. In *E. Dumerilii* the temporal region is represented as entirely yellow, whilst the black ring round the neck ought to have an anterior yellow margin only, the remainder being red. Inconsistently enough, the same parts in *E. decoratus* are represented as entirely red, whilst in fact the distribution of the colours is the same as in the former species.

4. In *E. Gravenhorstii* the colours are entirely confounded: what is red ought to be yellow, and *vice versâ*, according to the law that the rings within the black zone are always yellow.

With regard to the new species, we find two distinguished from the others by the sixth labial shield extending to the occipital. This appears to be a constant character in *E. decoratus*, which, especially by a very broad vertical shield*, shows that it is a really distinct species. This is not the case in *Elaps Rüsei*, founded on a single specimen from St. Thomas. The British Museum possesses six specimens—two from Trinidad (one lately arrived), one since ascertained to be from St. Vincent's, and three without proper locality, all of which were and are referred by myself to *E. corallinus*. The sixth upper labial is in two specimens separated from the occipital by a temporal; in two this temporal is united with the labial, both forming one shield in immediate contact with the occipital; in the fifth specimen is a separate temporal on one side and no temporal on the other; and in the sixth there are two temporal shields, but the upper angle of the labial shield touches the occipital: this

* In the figures of *E. decoratus* and *Rüsei* (Rev. et Mag. Zool. *l. c.*), the sixth labial is represented with a transverse fold. Cf. Proc. Zool. Soc. 1859, pl. viii. f. A.

character therefore cannot of itself constitute a species, much less a subdivision. There are two posterior oculars; and the single postocular of the Milan specimen was accidental, as Prof. Jan rightly supposes. There are seven to eleven black rings round the tail, and seventeen to twenty-eight round the trunk, in the snakes which are ascertained to come from the West Indies. The form of the head-shields being precisely the same as in *E. corallinus*, what other differences hold good? The black rings are more or less distinctly yellow-edged, which is generally not the case in *E. corallinus*; but then *E. Rüsei* would come into the category of *E. circinalis*, which Prof. Jan does not appear to admit as a species.

I shall now proceed to give the detailed results of the examination to which I have again subjected the specimens in the British Museum, in order to show the vast variability of these snakes, and the degree of possibility of applying to them definitions of such species as may be found in the work of Duméril and Bibron, and in the account of Jan.

First Group.—I begin with those species of *Elaps* in which the black rings are fully developed, without entirely suppressing the red ground-colour, and in which three black rings are always grouped together, including two yellow rings, and thus forming what I call a *zone*. The snakes of this group must be specifically distinct from those of the other, as this system of coloration cannot be a mere modification of that of the latter. Further, there can be no doubt that *E. surinamensis*, Cuv., *E. filiformis*, Gthr., *E. decoratus*, *E. Hemprichii*, Jan, and *E. Dumerilii*, Jan, are specifically different from the long-known *E. lemniscatus*, as they show remarkable differences in general habit or in the shields. Therefore our attention is directed particularly to the latter and its more or less important modifications. I may observe that in all the specimens which I shall mention as having been examined by myself, the shields of the head are precisely the same.

A. The middle black ring is wider than the outer ones, but less than twice as wide.

I. The intervening spaces of the red ground-colour are wider than the middle black ring.

1. A white cross-band before the eyes = *E. lemniscatus*, D. & B.

α. A yellow ring is wider than one-half of an outer black one; a single zone round the tail.

a. Six zones round the trunk; ventrals 236, caudals 21.—One specimen.

b. Seven zones round the trunk; ventrals 224, caudals 28.—One specimen from Pernambuco.

c. Eight zones round the trunk; ventrals 234, caudals 27.—Two specimens from Brazil.

d. Nine zones round the trunk; ventrals 238, caudals 24.—One specimen from Bahia.

e. Ten zones round the trunk; ventrals 228, caudals 26.—Two specimens from Bahia.

β. A yellow ring is half as wide as an outer black one; one zone and a half round the tail.

a. Nine zones round the trunk; ventrals 231, caudals 34.—One specimen from the West Indies.

b. Ten zones round the trunk; ventrals 220, caudals 36.—One specimen.

c. Ten zones round the trunk; ventrals 245, caudals 33.—One specimen from Trinidad.

d. Fourteen zones round the trunk; ventrals 262, caudals 30.—One specimen from Brazil.

2. No white cross-band before the eyes.

α. Nasal separated from the præocular by the third labial shield: *E. Gravenhorstii*, Jan, founded on a single specimen from Brazil; it is described as having the middle black ring twice as wide as an outer one, but the figure represents it narrower.

β. Nasal in immediate contact with the præocular.

a. The black rings not confluent on the belly.

αα. Shields of the muzzle and of the crown black, anteriorly margined with yellow; thirteen zones round the body, one round the tail.—One specimen from the Argentine Republic.

ββ. Muzzle and crown entirely black: *E. Margravii*, D. & B.

b. The black rings of every zone confluent on the belly, and the yellow rings spotted with black.

αα. Ten zones round the trunk, and one or one and a half round the tail; ventrals 230, caudals 22–24.—Two specimens from Brazil.

ββ. Twelve zones round the trunk and one round the tail; ventrals 232, caudals 20.—One specimen from Brazil.

3. Muzzle entirely white: *E. frontalis*, D. & B.

II. The intervening spaces of the red ground-colour are equal in width to the middle black ring: *E. Tschudii*, Jan.

III. The intervening spaces of the red ground-colour are narrower than the middle black ring; a white band before the eyes.

1. Ten zones round the trunk; ventrals 221, caudals 36.—One specimen.

2. Eleven zones round the trunk; ventrals 240, caudals 39.—One specimen.

B. The three black rings of each zone equal in width to one another.

I. No white band before the eyes: ?*E. Margravii*, D. & B. part.

1. Black rings not confluent on the belly.

a. Eight zones and a half round the body, one half round the tail; ventrals 222, caudals 22.—One specimen from River Capin (Para).

b. Twelve zones round the body, one round the tail; ventrals 228, caudals 23.—Two specimens from Caraccas.

2. Black rings confluent on the belly, a yellow band behind the eyes; ventrals 199–213, caudals 29–37: *E. elegans*, Jan, from Mexico.

II. A white band before the eyes.

1. The yellow rings are narrower than the black ones; thirteen zones round the trunk, one and a half round the tail.—One specimen.

2. The yellow rings are broader than the black ones; ten zones round the trunk, one round the tail.—One specimen from St. Vincent's,

which I consider as a variety of *E. corallinus* (*E. Rüsei*), where the rings exceptionally approach a triple arrangement.

All these different forms are viewed by myself as varieties of *Elaps lemniscatus*, L., as long as no other constant differences in the shields of the head, &c. are pointed out, with the exception perhaps of *E. Gravenhorstii*, known from a single specimen only, and of the last form mentioned, referred to *E. corallinus*.

The Second Group comprises those forms in which the black rings are equidistant, and if fully developed, do not entirely suppress the red ground-colour: some have the black rings edged with yellow; in others this colour appears to be absent. The group certainly contains several species, among which the most northern one is pretty well determined, also with regard to its geographical range: but there is a very great variation among the more southern ones; and which of them are such as to admit of a specific distinction, I attempt to show by the following examination and comparison of the British Museum specimens with the descriptions of different authors. *Nearly the whole group has been comprised by Schlegel under one species,* E. corallinus.

A. The red interspaces are spotted with black (besides the black tip of each scale).

I. Black rings edged with yellow.

a. The interspaces of the red ground-colour extend over ten to twenty scales.

α. The black rings rudimentary, gradually becoming complete and surrounding the body.

aa. Ten round black spots along the back and three rings round the tail: *E. epistema*, D. & B., from Mexico.

bb. Black bands irregularly interrupted, separated by ten to fourteen red scales; ventrals 216, caudals 40: *E. affinis*, Jan, from Mexico.

cc. Black bands interrupted on the sides, separated by sixteen red scales; thirteen round the trunk and five round the tail; ventrals 204, caudals 40.—One specimen from Mexico.

β. The black rings complete: *E. fulvius*, D. & B.

dd. Black bands separated by sixteen red scales, twelve round the trunk and five round the tail; ventrals 217, caudals 36.—Four specimens from Mexico.

ee. Black bands separated by fifteen red scales, eleven round the trunk and four round the tail; ventrals 213, caudals 41.—One specimen from California.

ff. Black bands separated by thirteen red scales, twelve or thirteen round the trunk and four or three round the tail; ventrals 216, caudals 33.—Four specimens from Mexico.

gg. Black bands separated by thirteen red scales, thirteen round the trunk and two round the tail; ventrals 224–237, caudals 26–38: =*E. tener*, Baird, from Texas.

hh. Black bands separated by twelve red scales, thirteen round the trunk and four round the tail; ventrals 222, caudals 42.—One specimen from Texas.

ii. Black bands separated by eleven red scales, fifteen round the trunk

and five round the tail; ventrals 213, caudals 41.—One specimen from North America.

kk. Black bands separated by eleven red scales, twelve round the trunk and five round the tail.—One specimen.

b. The interspaces of the red ground-colour extend over less than ten scales.

ll. Black bands separated by nine red scales, fourteen round the trunk and four round the tail; ventrals 213, caudals 41.—One specimen.

mm. Black bands separated by eight red scales, twenty-three round the trunk and six round the tail.—One specimen.

nn. Black bands separated by seven red scales, twenty-three or twenty-four round the trunk, and seven or six round the tail; ventrals 220, caudals 55.—Two specimens from Honduras.

II. The black rings without visible yellow edge.

a. The red interspaces are irregularly spotted with black; thirty-one black rings round the trunk, and eight round the tail: *Elaps apiatus*, Jan, from Vera Cruz.

b. A black cross, formed by four scales, in the dorsal centre of every red interspace; twenty-eight black rings round the trunk, and five round the tail.—One specimen from Mexico.

B. The red interspaces have no black spots besides the black tip of each scale.

I. Crown of the head (posterior portion of the occipital shields) white.

a. The interspaces between the black rings extend over seventeen scales; the width of a black ring is one-half of that of the red and yellow together; ten black rings round the body, and four round the tail.—Two specimens.

b. The interspaces between the black rings extend over eight to ten scales; the width of a black ring is one-fourth of that of the red and yellow together.

α. Nineteen black rings round the body, and four round the tail.—One specimen, perhaps = *Elaps diastema*, D. & B.

β. Twenty-three black rings round the trunk, and six round the tail; ventrals 228, caudals 40.—Two specimens.

c. The interspaces between the black rings extend over four to six scales; the width of a black ring is more than one-half of that of the red and yellow together; nineteen to twenty-one black rings round the trunk, and six round the tail; ventrals 222, caudals 55.—*Elaps Fitzingeri*, Jan, from Mexico.

d. The interspaces between the black rings extend over two to three scales, and

α, are broader on the belly.

aa. Thirty-nine to forty-five black rings round the trunk, two or three round the tail; ventrals 241, caudals 28.—Three specimens from Venezuela.

bb. Sixty-five black rings: *Elaps mipartitus*, D. & B., from New Granada and Cayenne (*Elaps decussatus*).

β. The interspaces are equal in width, superiorly and inferiorly; fifty-seven black rings round the trunk, and three round the tail; ventrals 278, caudals 24: *Elaps multifasciatus*, Jan, from Central America.

II. Crown of the head black.

a. The yellow rings are very distinct; the red ground-colour has generally a brown or brownish hue.

α. The width of the black rings is less than one-half of that of the interspaces between: *Elaps circinalis*, D. & B.

aa. The sixth upper labial in contact with the occipital: *E. Rüsei*, Jan.

αα. Twenty-six to twenty-eight black rings round the trunk, and seven or eight round the tail; ventrals 212, caudals 32.—Two specimens.

ββ. Twenty-five black rings round the trunk, and eleven round the tail; ventrals 184, caudals 45.—One specimen from St. Vincent's.

γγ. Twenty-two black rings round the trunk, and eight round the tail; ventrals 176, caudals 45.—One specimen from Trinidad.

bb. A separate temporal shield between the sixth upper labial and the occipital.

αα. Thirty-one black rings round the trunk, and seven round the tail; ventrals 210, caudals 31.—One specimen from the West Indies.

ββ. Seventeen black rings round the trunk, and six round the tail; ventrals 207, caudals 42.—One specimen.

β. The width of the black rings is more than one-half of that of the interspaces between.

aa. Twenty-eight black rings round the trunk, and ten round the tail; ventrals 202, caudals 47.—One specimen from Brazil.

bb. Twenty-eight black rings round the trunk, and six round the tail; ventrals 210, caudals 32.—One specimen.

cc. Twenty-five black rings round the trunk, and six round the tail; ventrals 214, caudals 34.—One specimen.

dd. Twenty-four black rings round the trunk, and eight round the tail; ventrals 210, caudals 31.—One specimen.

γ. The black rings and the interspaces between nearly equal in width; each black ring edged with a single series of isolated yellow scales anteriorly and posteriorly.

aa. Thirty-two black rings round the trunk, and nine round the tail; ventrals 109 (209?), caudals 47: *Elaps ornatissimus*, Jan, from Central America.

bb. Forty-two black rings round the trunk, and ten round the tail; ventrals 206, caudals 43.—One specimen from Para.

b. The yellow rings indistinct or not visible.

α. The interspaces of the red ground-colour extend over ten to thirteen scales: *Elaps corallinus*, D. & B.

aa. Over thirteen scales; seventeen black rings round the trunk, and six round the tail.—One specimen from Trinidad.

bb. Over twelve scales.

αα. Fifteen black rings round the trunk, and six round the tail; ventrals 194, caudals 43.—One specimen from the interior of Brazil.

ββ. Nineteen black rings round the trunk, and four round the tail; ventrals 221, caudals 30.—One specimen.

cc. Over eleven scales; eighteen black rings round the trunk, and five round the tail.—One specimen.

dd. Over ten scales; twenty to nineteen black rings round the trunk, and seven to eight round the tail.—Two specimens from Brazil.

β. The interspaces of the red ground-colour extend over less than ten scales.

ee. Over nine scales.

αα. Eighteen black rings round the trunk, and four round the tail; ventrals 215, caudals 28.—One specimen.

ββ. Eighteen black rings round the trunk, and seven round the tail.—One specimen.

$\gamma\gamma$. Twenty-one black rings round the trunk, and five round the tail; ventrals 211, caudals 30.—Two specimens from Brazil.

ff. Over eight scales.

$\alpha\alpha$. Twenty black rings round the trunk, and four round the tail; ventrals 201, caudals 28.—One specimen.

$\beta\beta$. Thirty-one black rings round the trunk, and seven round the tail; ventrals 201, caudals 32.—One specimen from Trinidad.

gg. Over seven scales; twenty-two black rings round the trunk, and ten round the tail.—One specimen.

hh. Over six scales.

$\alpha\alpha$. Thirty-three black rings round the trunk, and seven round the tail; ventrals 201, caudals 32.—One specimen.

$\beta\beta$. Thirty black rings round the trunk, and seven round the tail.—Three specimens.

$\gamma\gamma$. Twenty-nine black rings round the trunk, and ten round the tail; ventrals 190, caudals 43.—One specimen from the West Indies.

We can distinguish, among these numerous variations, two forms: the northern, with the black rings edged with yellow, the red ground-colour maculated with black, and a yellow occiput—*E. fulvius*; and the southern, without yellow rings, without black spots, and with black occiput—*E. corallinus*. But Schlegel had good reason for not even admitting these two species, because there occur a great many forms which we are at a loss to refer to either of the two, and which we shall be justified in raising to species if we shall have determined their geographical extent and their constancy of character by more than a single specimen. It appears to be perfectly evident, from the synopsis given above, that *E. affinis*, Jan, and *E. epistema*, D. & B., founded on single specimens, are merely varieties of *E. fulvius*. In this snake the bands *gradually* become fewer in number; they are regularly interrupted on the sides; they are irregularly interrupted (*E. affinis*), and finally are reduced to mere spots (*E. epistema*). It is, however, remarkable that all these specimens come from Mexico. As long as I could not establish the above series, I held *E. epistema* for a good species. *E. affinis* is represented by Prof. Jan without any yellow; but this appears to me rather doubtful.

E. tener, discovered by Prof. Baird, from Texas, may probably prove to be a good species, distinguished by a remarkably short tail and a comparatively slender body. More doubtful are *E. apiatus*, Jan; a specimen in the British Museum, closely allied to it (A. II. *b*), which I leave for the present as *E. corallinus*, var.; and *E. Fitzingeri*, Jan.

The division which I have placed under B. I. *d*, comprising those specimens in which a great number of black rings nearly suppress the ground-colour, the individuals of *which are of much smaller size and of a comparatively slenderer body*, is specifically

different from all the others: it comprises *E. mipartitus*, D. & B., *E. decussatus*, D. & B., *E. multifasciatus*, Jan, together with three specimens in the British Museum. The specific distinction of *E. multifasciatus* and *mipartitus* is not yet clearly pointed out; and the British Museum specimens do not completely agree with either, having a white band before the eyes, which peculiarity, however, in my opinion, cannot constitute of itself a specific character, as it is difficult to perceive why a modified extent of the black coloration of the head should be considered as more important than that of the trunk.

With regard to the remainder (B. II.), comprising *E. corallinus*, D. & B., *E. circinalis*, D. & B., *E. Rüsei*, Jan, *E. ornatissimus*, Jan, I consider them as one and the same species. Even if further observations should point out a specific difference between the *E. corallinus* from the West Indies and the continental coast nearest to those islands, and between the *E. corallinus* from the neotropical continent, this difference is not to be found in the sixth upper labial shield, as I have proved above, and the name of *E. Rüsei* must be considered as a synonym for an accidental form of *E. circinalis*, D. & B.

I can hardly give any opinion on *E. alternans* and *E. gastrodelus*, D. & B., perfectly unknown to me, and not admitted in the list of species by Prof. Jan. *E. Langsdorfii*, Wagl., is known to me also only by the very short note given on it by Prof. Jan. The discovery that *E. calligaster*, Wiegm. and *E. collaris*, Schleg., really are South American species, will be gratefully received by every herpetologist, the character of the East Indian *Elaps*, "*corpore vittato*," as given by Wagler, thus being undisturbed; but it is rather strange that specimens belonging to those species should be marked, both in the British and in the Paris Museum, as coming from the Philippines.

The list of South American species and varieties of *Elaps* will now be as follows:—

1. *Elaps corallinus*, L., with the varieties:
   - *a. E. psyche*, Daud.
   - *b. E. circinalis*, D. & B.
   - *c. E. Rüsei*, Jan.
   - *d. E. ornatissimus*, Jan.
2. *Elaps mipartitus*, D. & B., with the varieties:
   - *a. E. decussatus*, D. & B.
   - ? *b. E. multifasciatus*, Jan.
3. *Elaps Langsdorfii*, Wagl.
4. *Elaps fulvius*, L., with the varieties:
   - *a. E. tristis*, Baird and Girard.
   - *b. E. epistema*, D. & B.
   - *c. E. affinis*, Jan.
5. *Elaps tener*, Baird and Girard.
6. *Elaps bipunctiger*, D. & B.
7. *Elaps surinamensis*, Cuv.
8. *Elaps lemniscatus*, L., with the varieties:
   - *a. E. Margravii*, D. & B.
   - *b. E. frontalis*, D. B.
   - *c. E. elegans*, Jan.
   - *d. E. Tschudii*, Jan.
9. *Elaps filiformis*, Gthr.
10. *Elaps decoratus*, Jan.
11. *Elaps Dumerilii*, Jan.
12. *Elaps Hemprichii*, Jan.

Doubtful species are—

13. *Elaps gastrodelus*, D. & B.
14. *Elaps diastema*, D. & B.
15. *Elaps zonatus*, Hallowell.
16. *Elaps divaricatus*, Hallowell.
17. *Elaps apiatus*, Jan.
18. *Elaps Fitzingeri*, Jan.
19. *Elaps Gravenhorstii*, Jan.
20. *Elaps alternans*, D. & B.

XVII.—*Remarks on* Professor Allman's "*Notes on the Hydroid Zoophytes.*" By T. Strethill Wright, M.D.

In the Number of the 'Annals and Magazine of Natural History' for July 1859, is contained a description of three Zoophytes by Professor Allman which have previously been described by myself.

1. *Manicella fusca* (Allman), *Bimeria vestita* (mihi).

After describing this Zoophyte, Professor Allman states, "I have not been able to find any description of the present animal, though Dr. S. Wright informed me last year that he had met with a Tubularian Zoophyte in which the greater part of the polype was covered by the polypary."

This Zoophyte was discovered by myself in August (1858), soon after which time I gave an account of it in a letter to Mr. Joshua Alder. In October following I mentioned it and its locality to Professor Allman,—the same locality in which he found it last spring. On the 26th of January last, I described it, with figures, to the Royal Physical Society of Edinburgh; and it appeared in full in the report of the Society's Proceedings contained in the 'Witness' of the 16th of February, in which paper, under the editorship of the late Hugh Miller and since his death, the "Proceedings of the Royal Physical Society" have been regularly reported for some years. Finally, I have described the animal, with figures, in the 'Edin. New Phil. Journal' for July last. I am at a loss to account for Professor Allman's inability to find a description of *Bimeria vestita*, as an application to its discoverer would have removed every difficulty.

Professor Allman errs in stating that the *polypary* (the polypidom or corallum of other writers) covers the body of the polype and one-half the tentacles. The covering of the polype in *Bimeria* consists of the "colletoderm*," which in this species is

* I have formerly given the term "colletoderm" (κολλητὴς, *glutinator*) to a glutinous secretion which forms a covering to the hard corallum of zoophytes. In the *Corynes* it is readily seen on the tips of the growing shoots of the polypary, which are cemented by it to the surfaces over which they creep. It also forms the gelatinous marsupial sacs which surmount the female reproductive capsules of *Laomedea lacerata*, *Sertularia pumila*, &c., and in which the ova undergo their first metamorphosis. It